Ne

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,284	04/05/2001	Christopher Peak	103.1066.01	6331

22883 7590 11/02/2005

SWERNOFSKY LAW GROUP PC
P.O. BOX 390013
MOUNTAIN VIEW, CA 94039-0013

EXAMINER	
KENDALL, CHUCK O	

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/828,284	PEAK ET AL.	
	Examiner	Art Unit	
	Chuck O. Kendall	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53,80-110 and 124-164* is/are pending in the application.

4a) Of the above claim(s) *54-79 and 111-123* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-53,80-110 and 124-164* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the application filed 8/12/05.

2. Claims 1 – 125 were previously presented. In Applicants latest response (8/12/05) claims 54 – 79 and 111 – 123 were cancelled and claims 124 – 164 have been added. Claims 1 – 53, 80 –110 and 124 – 164 are currently pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 – 53,80 –110 & 124 – 164 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wahbee et al. USPN 6,151,618 (hereinafter "Wahbee") in view of Metlitski et al. US 2001/0037450 A1.

Regarding claims 1 &152 – 154, Wahbee discloses a method of analyzing instructions and data for a program to determine where the instructions and data might result in incorrect results (Col. 13: 55 – 58, for incorrect see invalid), when run on a multiprocessor system, the method comprising the steps of:

the multiprocessor system configured to use at most one processor at a time to execute instructions and to access data from any one domain;

determining which of the instructions and data involve references outside of their domains;

determining which of the references outside of their domains are multiprocessor unsafe references (see FIG. 4, 422, and associated text);

generating a report of the multiprocessor unsafe references (FIG.7, 725, see unsafe instructions); and

modifying the instructions and data based on the report (FIG.7, 725, see modify, unsafe instructions).

Wahbee doesn't explicitly disclose dividing the instructions and data for the program into plural domains based on the symbols used to refer to those instructions and data. However, Metlitski in an analogous art and similar configuration teaches a protected process being split in an open architecture which includes two virtual machine architecture see [0113,item 150] and for splitting protected process see [0115 – 0116].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Wahbee and Metlitski because, "the user obtains the full functionality of the original program without having the full access of the original program" [Metlitski, 0021].

Regarding claim 2, a method as in claim 1, wherein the instructions and data comprise code that prior to modification is designed for use on a single processor system (FIG.4, 434, see VM machine program).

Regarding claim 3, a method as in claim 1, wherein the determining steps, the generating step, and the modifying step are repeated until none of the references are determined to be multiprocessor unsafe references, whereby the code is modified to be suitable for use on a multiprocessor system (FIG. 4, 422 and 434).

Regarding claim 4, a method as in claim 1, wherein the instructions and data comprise source code that is analyzed before compilation (FIG.7, see source in step 710, and also refer back to FIG. 4, 434 for analyzing).

Regarding claim 5, a method as in claim 1, wherein the instructions and data comprise object code that is analyzed before being linked to form an executable (FIG. 7, 718, see VM instructions).

Regarding claim 6, a method as in claim 1, wherein the instructions and data comprise object code that is analyzed while being linked to form an executable (FIG. 7, 748, see machine language binary).

Regarding claims 7 & 127, a method as in claim 1, wherein the instructions and data comprise interpretable code that is analyzed at run time (FIG. 7, 731, also associated text for BRISC code which is interpreted for example 16:28 – 30).

Regarding claims 8 & 128, a method as in claim 1, wherein the instructions and data are for execution by a virtual machine, and wherein the instructions and data are analyzed by the virtual machine at run time (FIG. 4, 434, and associated text).

Regarding claims 9 & 129, a method as in claim 1, wherein the plural domains include a network domain comprising network functions and data referred to by the network functions, a storage domain comprising storage functions and data referred to by the storage functions, and a file system domain comprising other functions and data referred to by the other functions (16:13 – 18, see browser programs and network server, for storage and file system domain, see client computers, which Examiner believes to perform the equivalent functions of storage and a file system domain).

Regarding claims 10,130 and 158, method as in claim 9, wherein the plural domains further comprise a multiprocessor safe domain, and wherein instructions and data that involve references to the multiprocessor safe domain are considered to be multiprocessor safe references (FIG. 4, 422).

Regarding claims 11 & 131, a method as in claim 1, wherein the step of determining which of the references are multiprocessor unsafe further comprises determining which of the references are neither determined to be always multiprocessor safe nor annotated in the code as multiprocessor safe (FIG. 5, 514, and 548 and associated text).

Regarding claim 12, a method as in claim 11, wherein references can be annotated in the code as multiprocessor safe because the references switch domains at run time (12:49 – 51, see "*annotation information to load and run...*").

Regarding claims 13 & 132, a method as in claim 1, wherein the instructions and data are modified by adding annotations that indicate references outside of their

domains are multiprocessor safe (FIG.4, 422 and 418, for references outside of their domains see "*identify foreign program*").

Regarding claim 14, a method as in claim 1, wherein the instructions and data are modified by adding switch domain functions to the instructions and data to change multiprocessor unsafe references outside of a domain into multiprocessor safe references inside the domain (FIG. 5, 543 see unsafe).

Regarding claim 15, a method as in claim 1, wherein the instructions and data are

modified automatically based on the report of the multiprocessor unsafe references (FIG. 7, 725, see modify unsafe).

Regarding claim 16, a method as in claim 1, wherein the instructions and data are modified by an expert system aided by a user (9:52 – 55, see " user operation mode").

Regarding claim 17, a method as in claim 1, further comprising the steps of determining which of the references outside of their domains are purportedly multiprocessor safe references (FIG. 4, 422, identifies if foreign programs are safe); and

generating a table of the purportedly multiprocessor safe references, the table including the domains to which the references are supposed to refer (9:61 – 64, see site table).

Regarding claims 18 – 34, which recites the memory version of claims 1 – 17, see rationale as previously discussed above.

Regarding claim 35, a memory as in claim 18, wherein the memory is a removable storage medium, fixed disk, RAM or ROM.

Regarding claims 36 – 53, which recites the analyzer version of claims 1 – 17, see rationale as previously discussed above.

Regarding claim 80, which recites similar limitations as in claim 1, see rationale as previously discussed above.

Regarding claim 81, which recites similar limitations as in claim 7, see rationale as previously discussed above.

Regarding claim 82, which recites similar limitations as in claim 8, see rationale as previously discussed above.

Regarding claim 83, which recites similar limitations as in claim 9, see rationale as previously discussed above.

Regarding claim 84, which recites similar limitations as in claim 10, see rationale as previously discussed above.

Regarding claim 85, which recites similar limitations as in claim 11, see rationale as previously discussed above.

Regarding claim 86, a method as in claim 85, further comprising the step of modifying the instructions and data based on the report (FIG.7, 725, see modify, unsafe instructions).

Regarding claim 87, a method as in claim 80, wherein if the reference is not actually to a domain to which that reference is supposed to refer, execution of the instructions and data halts and an error message is generated (13:55 – 60, see "system error handling routine").

Regarding claim 88, a method as in claim 80, wherein if the reference is not actually to a domain to which that reference is supposed to refer, the instruction or data making the reference is modified (FIG.7, 725 and associated text).

Regarding claim 89, a method as in claim 88, wherein the instruction or data making the
reference is re-executed after being modified (FIG.7, 748 also refer back to FIG. 4, 436 for load and execute).

Regarding claims 90 – 99, which recites the memory version of claims 80 – 89, see rationale as previously discussed above.

Regarding claims 100 – 109, which recites similarly to claims 80 – 89, see rationale as previously discussed above.

Regarding claims 110, 124 and 125, which recites similarly to claim 1, see rationale as previously discussed above.

Regarding claim 124 – 126, which recites similarly to claim 1, see rationale as previously discussed above.

Regarding claim 133, which recites similarly to claims 109, see rationale as previously discussed above.

Regarding claim 134 – 141, which recites similarly to claims 126 – 133, see rationale as previously discussed above.

Regarding claims 142 – 149, which recites similarly to claims 126 – 133, see rationale as previously discussed above.

Regarding claim 150, as in claim 142, wherein the checker is embodied as a function of instructions and data (Wahbee, FIG.5, 520).

Regarding claim 151, a checker as in claim 142, wherein the checker runs concurrently with execution of instruction and data (Wahbee, FIG. 6, 622 and 635,shows verification and implementing optimizations, which examiner interprets to be concurrent).

Regarding claims 155, instructions and data as in claim 153, wherein domain definitions further comprise a makefile, (Wahbee, see programming language file).

Regarding claims 156, which recites similarly to claim 17, see reasoning above.

Regarding claims 157, which recites similarly to claim 1, see reasoning above.

Regarding claim 159, annotations as in claim 157, wherein the reasons include that the reference is only used at initialization (Wahbee, 16:7 – 10).

Regarding claim 160, which recites similarly to claim 19, see reasoning above.

Regarding claim 161, annotations as in claim 157, wherein the reasons include that the reference is to a constant (Wahbee, 9:57 – 59).

Regarding claim 162, which recites similarly to claim 35, see reasoning above, same as ROM.

Regarding claim 163, annotations as in claim 157, wherein the reasons include that the reference is of such a nature that interference with another reference is acceptable (Wahbee, 13:50 – 55, shows if reference has a valid memory address then its allowed to proceed).

Regarding claim 164, which recites similarly to claim 12, see reasoning above.

Response to Arguments

5. Applicant's arguments with respect to claims1 – 53, 80 –110 and 124 – 164 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-2723698. The examiner can normally be reached on 10:00 am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-2723695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK.

WEI Y. ZHEN
PRIMARY EXAMINER